

Two new species of the phytoseiid genus *Neoseiulus* (Acari: Mesostigmata) from Steppe zone of Ukraine

Leonid A. KOLODOCHKA[✉] and Vitalyi Yu. BONDAREV

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Institute of Zoology, National Academy of Science of Ukraine, Bogdan Khmelnytsky str. 15, 01601 Kiev-30, GSP, Ukraine. (✉) leon@izan.kiev.ua, bondaref@i.ua

ABSTRACT — Two new species of phytoseiid mites of the genus *Neoseiulus* (Acari: Mesostigmata) from Steppe zone of Ukraine are described. Detailed descriptions, drawings, measurements, diagnosis of the new species, and the data of mite locations are given.

KEYWORDS — *Neoseiulus*; phytoseiid mites; Steppe zone; Ukraine

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INTRODUCTION

Mites of the family Phytoseiidae (Acari: Parasitiformes) are well known as regulators of magnitude of population of small phytophagous microarthropods inhabiting terrestrial plants. During a study of mites on plants of maritime landscape of Steppe zone of Ukraine (territory of Black Sea Biosphere Reserve National Academy of Sciences of Ukraine) two unknown phytoseiid species were found. Their descriptions, drawings, and diagnoses are given in this paper.

MATERIALS AND METHODS

Only single specimen for each of the two new species of phytoseiid mites (Parasitiformes: Phytoseiidae) were found in the collected samples in 2015

on plants of Black Sea Biosphere Reserve. The mites were kept in 70% alcohol, and then mounted on microscope slides in Hoyer's medium for examining under microscope MBI-3 (LOMO). A phase contrast attachment KF-1 (LOMO) and a camera Lucida apparatus RA-6 (LOMO) were used for the drawings. Setal nomenclature and idiosomal setal pattern follows that proposed by Lindquist and Evans (1965), as adapted by Rowell *et al.* (1978) for Phytoseiidae. Nomenclature of setae on legs follows that of Evans and Till (1979). Nomenclature of dorsal solenostomes follows that Athias-Henriot (1975). The nomenclature of spermatheca structures follows Kolodochka (1990). The apical tooth is not included in the number of teeth of cheliceral digits. Measurements are presented in micrometers (µm).

Holotypes of both new species are deposited in the Institute of Zoology, National Academy of Sciences of Ukraine (IZNASU), Kiev.

Neoseiulus ponticus
Kolodochka and Bondarev, n. sp.
(Figure 1)

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Material examined — One female (holotype), on cane (*Phragmites australis*), # 6651/699, data 09 June 2015, dried out lake to NW from ranger station, Ivano-Rybalchanski area, Black Sea Biosphere Reserve (46°24'N, 32°12'E), coll. V. Bondarev.

Description — Female (damaged). Dorsal shield (Fig. 1A) oval, weakly sclerotized, with appreciable constrictions at level of R1 and thin reticulation on its posterior part, 6 pairs of small distinct solenostomes (*gd1*, *gd2*, *gd4*, *gd6*, *gd8*, *gd9*), and 17 pairs acute setae. Setae Z5 and S5 longer than other dorsal setae and low-contrasting in length. Dorsal setae smooth except S4, S5, Z4, Z5, and J5 weakly serrated (Fig. 1B). Seta *j3* obviously shorter than distance from its base to base of seta *z2*. Seta *z2* less than half of distance between bases of *z2* to *z4*. Seta *z4* near half of distance from own base to base of seta *s4*. Seta S5 longer than S2 and S4. Setae Z4 and J5 equal in length. Seta Z4 approximately equal to distance between its base and solenostome *gd9*. All ventral setae thin, acute, and smooth. Sternal shield weakly sclerotized with 3 pairs of setae (St1–St3) and two pairs of pores. Setae St3 on post-lateral apophyses of sternal shield. Setae St4 each on separate metasternal scutes each with pore. Genital shield with one pair of seta (Ge). Fourth and 5th pairs of genital sigilla as sclerotized very narrow transversal stria between genital and ventrianal shields. Genital sigilla 6th pair (*sgpa*) narrow, weakly curved, separate on interscutal membrane, posteroparaxially to setae ZV1 (Fig. 1C). Ventrianal shield broader than genital shield, semi-triangular in form with straight frontal margin and convex lateral margins, smooth with insignificant striation (Fig. 1C). Ventrianal shield with three pairs of preanal setae JV1, JV2, ZV2; one pair of para-anal setae (Pa) and unpaired post-anal (Pst). Pair of minute and wide arranged solenostomes (*gv3*) placed posteroparax-

ially of setae JV2. Setae ZV1, ZV3, JV4, and JV5, as well 4 pairs of small platelets on the integument surrounding the ventrianal shield. Chelicerae in size normal against body. Fixed digit with 7 denticles (1 subapical large and 6 small in single row), movable digit with 1 denticle (Fig. 1D). Metapodal plates elongated, anterior platelets smaller and narrower than posterior plates (Figs. 1E1–E2); one large metapodal plate modified (Fig. 1E1). Funnel (infundibulum) of spermatheca cup-shaped with large atrium on short cervix, walls of funnel very thin, major duct wide (Fig. 1F). Peritremes long, extending beyond to level of bases of setae *j3* (Fig. 1A). Posterior part of peritremal shield narrow, curved, and acuminate (Fig. 1G). Leg IV with three slender macrosetae: on basitarsus longest with small clava on tip, on tibia and genu shorter (Fig. 1H). No macrosetae on other legs. Genu II with 7 setae (2 al – 2 ad, 2 pd / 0 av, 0 pv – 1 pl) (Fig. 1I).

Measurements — length of dorsal shield from *j1* to the end of the shield, Lds 370; width of dorsal shield at R1 level, Wds 218; length of ventrianal shield, Lvas 124; max width of ventrianal shield, Wvas 109; distance between solenostomes *gv3*, Lgv3 47; length of tarsus of leg IV, Ltar IV 90.

Setae — *j1* 21, *j3* 23, *j4* 12, *j5* 13, *j6* 18, J2 20, J5 27, *s4* 24, *z2* 18, *z4* 20, *z5* 12, S2 29, S4 38, S5 42, Z1 21, Z4 27, Z5 64, *r3* 25, R1 27, JV5 48; macrosetae on leg IV: *ge* 23, *ti* 32, *tar* 54.

Male unknown.

Notes — Presence of elongated and serrated dorsal setae J5 in *Neoseiulus ponticus* n. sp. is a rare character amongst species of the subfamily Amblyseiinae. Second rare feature is setae S4, S5, Z4, Z5 serrated. Combination of these two unique features discriminates *N. ponticus* from the other species of genus *Neoseiulus*.

Neoseiulus ponticus n. sp. is similar to *N. bicaudus* (Wainstein, 1962) by having all dorsal setae short (Z5 longest), general form of spermatheca, and long macroseta on basitarsus leg IV.

The new species distinctly differs from the latter by presence of 6 pairs of dorsal solenostomes (*gd5* absent) instead of 7 as in *N. bicaudus*, by diverse proportions of setae lengths in posterior part of dorsal shield; by seta J5 twice longer, by presence of dorsal

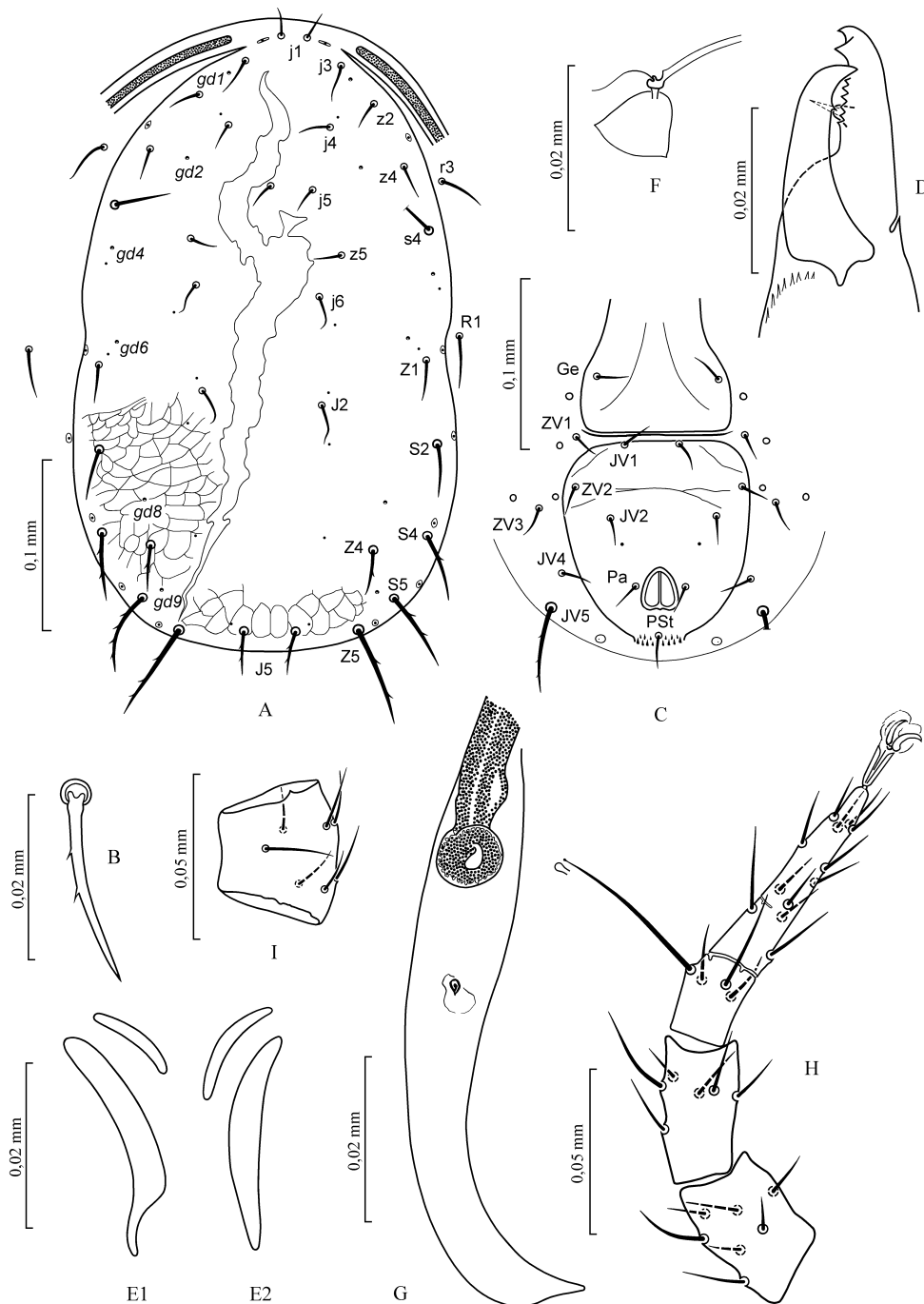


FIGURE 1: *Neoseiulus ponticus* Kolodochka and Bondarev, n. sp. Female: A – dorsal shield; B – setae J5; C – fragment of ventral body surface; D – chelicera; E1, E2 – metapodal plates; F – spermatheca; G – caudal part of peritremal shield; H – fragment of leg IV; I – genu II (decryption of abbreviations see in text).

setae J5, S4, S5, Z4, Z5 serrated (instead of Z5 serrated only in *N. bicaudus*); and by 7 teeth on fixed digit of chelicera instead of 6 in *N. bicaudus*.

There is no data about ecological characters of the new species.

Neoseiulus probatus
Kolodochka and Bondarev, n. sp.
(Figure 2)

Zoobank: [6D4D6ACC-EBC5-4D75-8AF1-2E0347AF50F2](https://doi.org/10.6026/1367-5487.2020.20002)

Material examined — One female (holotype), on cane (*Phragmites australis*), # 6558, date 10 June 2015, lake to S from ranger station, Ivano-Rybalchanski area, Black Sea Biosphere Reserve (46°27'N, 32°10'E), coll. L. Kolodochka.

Description — Female. Dorsal shield (Fig. 2A) weakly sclerotized, elongated, with constrictions on level of setae z4, R1, as well as between S5 and Z5; feebly net-like reticulated in posterior part, with 4 pairs of small distinct solenostomes (*gd1*, *gd2*, *gd6*, *gd9*), and 17 pairs acute, thin, flexible, short and slightly different in length setae except elongate Z5. Dorsal setae smooth except Z5 weakly serrated. Setae J5 short, each with one barb (Fig. 2B). Length of seta j3 slightly longer than distance from own base to base of seta z2. Setae z2 and z4 twice shorter than distance between their bases to bases of next setae. Seta S4 longer than S3 and S5. Seta Z4 shorter than distance between its base to solenostome *gd9* (Fig. 2A). All ventral setae thin, acute, and smooth (Fig. 2C). Sternal shield weakly sclerotized, with 3 pairs of setae (St1–St3) and 2 pairs of pores. Seta St3 on post-lateral apophyses of sternal shield. Setae St4 each on small separate metasternal platelets each with pore. Genital shield with one pair of setae (Ge). Sclerotized line-like transversal stria between genital and ventrianal shield are the 4th and 5th pairs of genital sigilla. Genital sigilla 6th pair (*sgpa*) of semilunar shape, on interscutal membrane, posteroparaxially to setae ZV1 (Fig. 2C). Ventrianal shield wider than genital shield, near pentagonal in shape with convex anterior margin, lateral margins with light constrictions and thin striation in circum-anal area. Three pairs of short preanal setae JV1, JV2, ZV2 on ventrianal shield. Solenostomes *gv3* crescentic, disposed between setae JV2

and behind their level. Four pairs of ventral setae (ZV1, ZV3, JV4 and JV5) and four small oval platelets on the integument surrounding the ventrianal shield (Fig. 2C). Chelicerae normal in size. Fixed digit with 5 distinct denticles (two subapical and three smaller teeth in separate row), movable digit with one tooth (Fig. 2D). Metapodal plates elongate, anterior platelet significantly smaller and narrower than posterior plate (Fig. 2E). Spermatheca with funnel bell-shaped and wall thickened, atrium small, and cervix very short (Fig. 2F). Peritremes long, extending beyond bases of setae j3 (Fig. 2A). Posterior part of peritremal shield broad, curved, widened because of the fusing of its inner edge with exopodal scutum of leg IV (Fig. 2G). Leg IV with three smooth macrosetae: longest on basitarsus with small clava on tip, markedly shorter and acute on tibia and genu (Fig. 2H). No macrosetae on other legs. Genu II with 8 setae (2 al – 2ad, 2 pd / 1 av, 0 pv – 1 pl) (Fig. 1I).

Measurements — length of dorsal shield from j1 to the end of the shield, Lds 390; width of dorsal shield at R1 level, Wds 177; length of ventrianal shield, Lvas 143; max width of ventrianal shield, Wvas 111; distance between solenostomes *gv3*, Lgv3 29; length of tarsus of leg IV, Ltar IV 100.

Setae — j1 29, j3 30, j4 14, j5 12, j6 13, J2 13, J5 11, s4 33, z2 25, z4 23, z5 11, S2 40, S4 47, S5 40, Z1 20, Z4 23, Z5 82, r3 41, R1 22, JV5 63; macrosetae on leg IV: ge 27, ti 36, tar 63.

Male unknown.

Notes — *Neoseiulus probatus* n. sp. closely resembles *N. bicaudus* but differs from it by occurrence of only 4 pairs of dorsal solenostomes (*gd4*, *gd5* and *gd8* absent); by thin and flexible dorsal setae, by setae J5 with one notch each, by seta JV5 smooth, by bell-shaped funnel of spermatheca with thick wall, and by fissured anal pores as compared with 7 pairs dorsal solenostomes, comparatively thickened and rigid dorsal setae, setae J5 smooth, seta JV5 serrate, cup-shaped and thin wall of spermatheca funnel, point anal pores in *N. bicaudus*.

N. probatus n. sp. differs from *N. ponticus* n. sp. by presence of 4 dorsal solenostomes against 6 pairs in the latter; by different sizes of dorsal and ventrianal shields; by setae J5 shorter and setae Z5 longer;

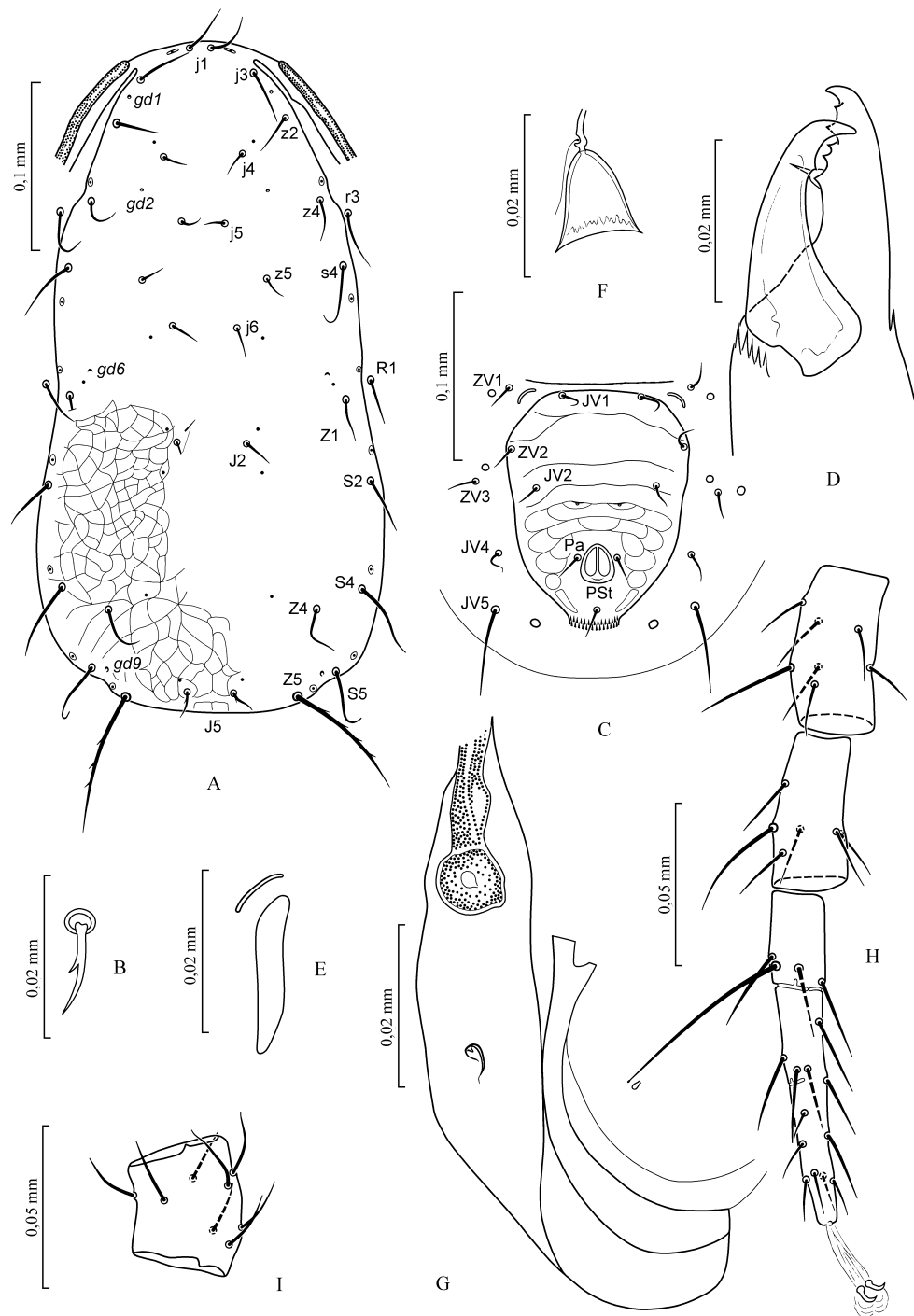


FIGURE 2: *Neoseiulus probatus* Kolodochka and Bondarev, n. sp. Female: A – dorsal shield; B – setae J5; C – fragment of ventral body surface; D – chelicera; E – metapodal plates; F – spermatheca; G – caudal part of peritremal shield; H – fragment of leg IV; I – genu II.

by seta S4 longest in row of setae S2-S4-S5 (against S5 longest in the latter); by 5 teeth on fixed digit of chelicera against 7 teeth as in *N. ponticus*.

There is no data about ecological characters of the new species.

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